

Remarks/Arguments

Applicants thank Examiner Parekh for the careful examination of this application and the clear explanation of the claims rejections. Regarding the 103 rejections, however, applicants respectfully submit that they are improper because the Office action fails to establish a prima facie case of obviousness:

The Office action depends solely on APA and the Wang reference (US 6,782,897) in rejecting claims 1-8, 10, 11, 18, 20, and 21. Claims 1 and 20 are independent claims.

Claim 1 describes a semiconductor device that has, among other limitations, a stack of protection layers over the surface of an integrated-circuit chip. The stack has a first inorganic layer on the surface of the chip, a polymer layer on the first inorganic layer, and a second inorganic layer on the polymer layer. Claim 20 also has this limitation.

The Office action concedes that APA fails to teach the stack of protection layers including a second inorganic layer on the polymer layer, but argues that the Wang reference makes up for this deficiency. The Wang reference does not do so.

The first evidence cited in the Office action is the following:

After the chip bonding pad 30 is formed, a passivation layer system 32, for example, including one or more layers of silicon nitride (SiN), polyimide, and Benzocyclobutene (BCD), are formed over the substrate surface 31 excluding an area overlying the chip bonding pad 30.¹

It is clear that even though it discloses silicon nitride and organic materials, there is no disclosure in the sentence regarding which layer is over the chip surface, which layer follows, and which layer sits on top. And since neither APF nor the Wang reference discloses a stack of protection layers in described order, 103 rejections against claims 1 and 20 are improper.

Even if the Wang reference discloses the layers individually, it is well established that obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the combination.² There is just no evidence in record to suggest a combination of the inorganic and organic layers in the specific order as described in claims 1 and 20. The record does not support the conclusory statement that "the passivation and the adhesion/bonding can be improved, and delamination and stress can be reduced."

¹ US 6,782,897, col. 4, ll. 48-53.

² ACS Hospital Systems, Inc. v. Montefiore Hospital, 732 F. 2d. 1572, 1577, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984).

Without more, the rejections are tantamount to "obvious to try" the combination of inorganic layer, organic layer, and inorganic layer. But it is also well established that obvious to try is not the standard of 35 U.S.C. §103.³ The Wang reference only discloses "a passivation layer system 32, for example, including one or more layers of silicon nitride (SiN), polyimide, and Benzocyclobutene (BCD). It does not even disclose a definitive number of layers." With the individual layers, the possible combination is simply endless, even if one starts with the examples in AFA.

The next evidence set forth in the Office action calls for column 4 through column 6 of the Wang reference. Columns 4, 5, and 6 contain the entire detailed-description section of the Wang reference. Other than the one sentence discussed earlier, there is nothing in Wang's description that further concerns the make-up of the passivation layer. Therefore, obviousness based on that must also fail.

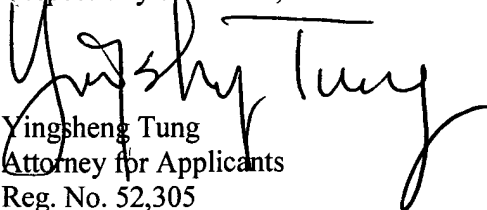
Claims 2-19 depend directly or indirectly on claim 1. Since claim 1 survives the 103 rejection, claims 2-19 must not be obvious at least by virtue of their dependency.

Claims 21 and 22 depend directly on claim 20. Since claim 20 survives the 103 rejection, claims 21 and 22 must not be obvious at least by virtue of their dependency as well.

In summary, applicants respectfully submit that because neither APA, nor the Wang reference specifically discloses at least one limitation of the structure of the semiconductor device in claims 1 and 20, the 103 rejections are improper and claims 1 and 20 and their dependent claims are not obvious in view of the reference. Applicants respectfully request the withdrawal of the rejections and timely allowance of the pending claims.

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Respectfully submitted,


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³ See, e.g., In re Antonie, 559 F. 2d 618, 620, 195 U.S.P.Q. 6, 8 (CCPA 1977).